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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,857	07/03/2003	Masatoshi Taya	67161-045	3872
7590 06/03/2005				
McDermott, Will & Emery 600 13th Street, N.W. Washington, DC 20005-3096			EXAMINER SOWARD, IDA M	
			ART UNIT 2822	PAPER NUMBER

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/611,857	TAYA, MASATOSHI	
	Examiner	Art Unit	
	Ida M. Soward	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 9-12 is/are allowed.
6) ☒ Claim(s) 1,5 and 6 is/are rejected.
7) ☒ Claim(s) 2-5,7 and 8 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the Applicant's amendment filed March 17, 2005.

Specification

The objection to the specification has been withdrawn due to the amendment filed.

The objection to the title has been withdrawn due to the amendment filed.

Claim Objections

The objection to claim 4 has been withdrawn due to the amendment filed.

Claim Rejections - 35 USC § 112

The rejection of claims 5, 8 and 9-12 has been withdrawn due to the amendment filed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa et al. (5,654,560) in view of Esquivel (4,698,900).

In regard to claim 1, Nishizawa et al. teach a semiconductor device, comprising:
a first impurity region 2 of a first conductivity type formed on a main surface of a semiconductor substrate 1;

a first isolating insulation film 82 formed on a surface of the first impurity region 2;

a second impurity region 32 of a second conductivity type formed at that portion of the first impurity region which is positioned immediately below the first isolating insulation film 82;

a third impurity region 41 of the second conductivity type formed at a surface of a portion of the first impurity region 2, spaced apart from the first isolating insulation film 82;

a fourth impurity region 42 of the second conductivity type formed on a portion of the first impurity region 2 on a side opposite to the third impurity region 41 with the first isolating insulation film 82 positioned therebetween, spaced apart from the first isolating insulation film 82;

a right portion of electrode 7 formed on that portion of the first impurity region 2, which is sandwiched between the second impurity region 32 and the third impurity region 41;

and a left portion of electrode portion 7 formed on that portion of the first impurity region 2, which is sandwiched between the second impurity region 32 and the fourth impurity region 42 (Figure 1, column 4, lines 1-52).

In regard to claim 6, Nishizawa et al. teach the second impurity region 32, the third impurity region 41 and the fourth impurity region 42 each formed as wells (Figure 1, column 4, lines 1-52).

However, Nishizawa et al. fail to a first electrode portion sandwiched between a second impurity region and a third impurity region and a second electrode portion sandwiched between a second impurity region and a fourth impurity region.

Esquivel teaches a first electrode portion 18 (right) sandwiched between a second impurity region 14 (center) and a third impurity region 14 (right) and a second electrode portion 18 (left) sandwiched between a second impurity region 14 (center) and a fourth impurity region 14 (left) (Figure 1, columns 6, lines 1-68).

To reiterate, Nishizawa et al. disclose the claimed invention except for a first electrode portion sandwiched between a second impurity region and a third impurity region and a second electrode portion sandwiched between a second impurity region and a fourth impurity region. Esquivel teaches that it is known to have a first electrode sandwiched between a second impurity region and a third impurity region and a second

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electrode portion sandwiched between a second impurity region and a fourth impurity region.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor structure as taught by Nishizawa et al. with the semiconductor structure having a first electrode sandwiched between a second impurity region and a third impurity region and a second electrode portion sandwiched between a second impurity region and a fourth impurity region as taught by Esquivel to significantly reduce the fringing capacitance at the lower corners of the electrodes (column 2, lines 44-60).

Allowable Subject Matter

Claims 9-12 are allowed.

Claims 2-5 and 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 03-17-2005 have been fully considered but they are not persuasive.

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In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to do so is found in the Esquivel (4,698,900) reference (column 2, lines 44-60).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that Nishizawa et al. (5,654,560) and Esquivel (4,698,900) are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Nishizawa et al. (5,654,560) and

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Esquivel (4,698,900) are in the same field of applicant's endeavor (MOSFET structures with isolation insulation film).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to semiconductor devices:

Chi et al. (5,753,954)

Hsu et al. (5,521,105)

Park (5,950,088)

Taguchi (5,218,224).

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ida M Soward whose telephone number is 571-272-1845. The examiner can normally be reached on Monday - Thursday, 6:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

IMS
May 26 2005


AMIR ZARABIAN
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